The American Biology Teacher

Vol. 11 OCTOBER, 1949 No. 6

Trends in School Health Education in the Secondary Schools*

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The Trend Toward Guiding People to Do for Themselves That Which is Desirable for Their Own Health.

Health cannot be attained through the efforts of medicine and public health alone. It is recognized that medicine and public health do things *for* people, whereas the task of education is to guide people to do for themselves that which is good for their own health and that of others in this and future generations.

Historically, health education has, of necessity, been centered upon those areas of health needs which could be approached collectively, that is, through community action. The measures taken to meet these needs have dealt mainly with the control of communicable diseases—diseases caused by germs. Included in such public health programs have been water purification, sewage disposal, health inspection of food handlers, quarantine, vaccination, extermination of vermin, and pasteurization of milk. These measures alone have contributed greatly to the improvement of health as is evidenced by the great reduction in the incidence of many communicable diseases, such as typhoid fever, malaria, diphtheria, and dysentery.

The measures of the community-action type have affected the well-being of all the people even though many have had but a slight awareness of what was being accomplished. The only health education involved has been that needed to obtain the support of a sufficient number of individuals in the community or in the State to make possible the adoption of the necessary health legislation and the appropriation of the needed funds. For the majority of people, their part in accomplishing these health measures has been a passive one. At the most, the individual has been called upon to conform and not to understand or initiate.

However, the greatest menaces to longevity and happiness now are for the most part noncommunicable diseases which cannot be controlled without individual understanding of the problems

* Presented at the Annual Meeting of The National Association of Biology Teachers, Washington, D. C., December, 1948.

involved and without personal assumption of responsibility for preventing and correcting them. Today's main causes of death and illness are arthritis, cancer, hardening of the arteries, tuberculosis, nephritis, and disorders of the human brain. These, along with accidents, are the seven chief disablers in the United States. Tuberculosis is the only one which is a communicable disease. Improving health, consequently, is more a problem of education and less a matter of legislation and sanitary engineering. The great needs are to inform and to motivate people so that they will do for themselves those things which are desirable for their own health and the health of others.

The Trend Toward Enlarging the Scope of Health Instruction.

The changed needs as already outlined are reflected in the secondary schools through health instruction curricula, courses of study and textbooks, and through the recommendations of national groups.

Whereas formerly the practice was to give somewhat equal emphasis to sanitation and personal health problems, the present trend is to expand several of the sub-topics usually included under personal health, into sizable teaching units.

Although the terminology and arrangement of content may differ considerably among schools, the tendency is to include the following ten major areas of health instruction on the secondary level: personal living, community living sanitation, nutrition, physical activity, safety education, first aid, emotional and social health, education for family living, and occupational or industrial health.

Among the sub-topics which are often included in one or more of the basic areas, depending upon grade levels, are: cleanliness, grooming; care of the eyes, ears, and teeth; fatigue, rest, sleep, and exercise; alcohol and tobacco; emotions; recreation, hobbies; communicable and noncommunicable diseases; lighting, heating, and ventilation; periodic health examination, selecting a doctor; health advertising; home nursing; human reproduction, marriage; world health problems; and anatomy and physiology as related to these topics.

Health educators are of the opinion that the pupil, as he matures, needs a thorough understanding of the facts underlying desirable health behavior. Consequently, in the secondary school, especially the senior high school, there is considerable emphasis upon scientific background in the health teaching.

Recommendations made by the Third National Conference on Health in Colleges for health instruction on the college level follow the trends as outlined for the high school. A basic required course in "Personal and Community Health" is strongly recommended. It "should include the following units of health instruction: nutrition, motor activity, education for family living, hygiene, mental hygiene, sense organs, effects of external factors on the body, control of communicable diseases, other major health hazards, community organization in the field of health, evaluation of community health services, and significance of the periodic health examination."[1]

The fact that the majority of high school students will not go to college and therefore will not receive the additional training indicated above, is added reason for making sure that the health

[1] *A Health Program for Colleges.* A report of the Third National Conference on Health in Colleges. New York: The National Tuberculosis Association, 1948. p. 44.

instruction in the high school is of an effective character.

The Trend Toward Special Health Courses in Secondary Schools.

Two methods of providing health instruction in the secondary schools in this country are in current use, namely, through integration and through separate courses.

1. The integration of health education. The value of integration in health education varies somewhat, depending upon the objectives sought. Desirable habits, behavior, and conduct in any field can be strengthened by continuous application and, consequently, should be encouraged in all situations. Health attitudes are strengthened by being encouraged from a variety of viewpoints and approaches.

Health facts and skills, however, need more than a casual or incidental consideration. The amount of factual information which each individual needs today is too extensive to warrant its distribution among a number of other subjects. Where a considerable amount of factual matter, such as comprises the science of nutrition, needs to be learned or where a number of skills, such as in first aid, needs to be acquired, depending upon integration alone, may result in neglect and in a dilution to the point which fails to improve the understanding and skills of students.

All phases of the school program can potentially contribute in some way to learning experiences in health. The natural sciences, physical education, home economics, and social sciences afford the greatest opportunity for the inclusion of health instruction. Service activities, such as the school lunch and medical examination, and recreation can also contribute to health education.

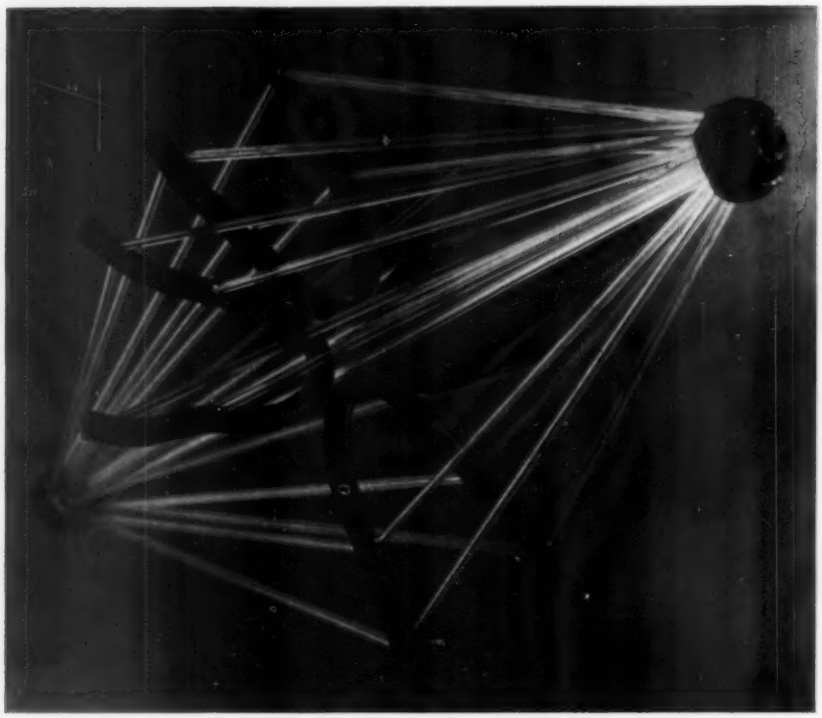
Unfortunately, few schools have had a well-integrated program in health education. Furthermore, where they do occur, the integrated health program usually is not uniformly available to all students. This latter point is considered a serious one by many educational leaders who believe that the schools have a responsibility to all students in health education. Consequently, educators are turning to the more formal teaching of health through specific courses.[2]

2. The special health course. The current trend is to consolidate the hours commonly given to health and safety instruction, where it has been offered during health and physical education time, into one or two semesters in the junior and the senior high schools. The recommendations of several national organizations and conferences have been that there be at least one full semester (preferably two, including safety) of daily instruction on both the junior and senior high school levels. A less satisfactory plan is that of two or three hours of instruction weekly for one full year on each level.

The teaching of health through special courses has certain advantages. It enables all students to take the course; it gives the subject greater importance and so gains more respect from students as well as teachers; it permits normal-sized classes; and it facilitates the granting of credit.

Health educators maintain that the need for integration still continues even though there is a special course. They stress that the contributions of other subjects and activities to health education should be in addition to, rather than in place of, the specific health course.

[2] Kilander, H. F. The Concentrated Health Course. *The Journal of Health and Physical Education.* January 1947. p. 2.



Three-Dimensional Mitosis Models

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Models are often helpful in teaching the process of mitosis to general biology students. If Whitefish or Ascaris slides are used many students cannot visualize the three-dimensional arrangement of chromosomes, spindle, and centrosomes in the sectioned eggs. Furthermore the instructor is forced to take time to explain in detail the reasons for the varying arrangement of these components from egg to egg on a single slide.

The pictured model has been used with large classes in illustrating the possibilities relative to the position of an egg when it is sectioned by the microtome. In addition, the students seem to gain a better understanding of the mechanics of mitosis if the model is shown and explained before the mitosis slides are studied.

This model and companion models illustrating other phases of mitosis can be constructed from materials usually found in biology or chemistry laboratories. For effective use with large classes the finished model should measure at least sixteen inches between chromosomes and the equatorial diameter should be at least twelve inches.

The chromosomes were made of 3/8 inch black rubber tubing with heavy, insulated electric wire acting as a stiffening core. The spindle fibers were made of four millimeter capillary glass tubing.

Ordinary six millimeter glass tubing would serve just as well for this purpose. The centrosomes, in this case, consisted of cotton twine wrapped to form a ball at the junction of the spindle fibers.

Construction of the models is quite simple if the following general order of assembly is adhered to. Four lengths of glass tubing were given a very slight bend at their centers, placed together, and their ends bound together with Scotch tape to form the core element of the model. The four chromosomes were then temporarily wired to these core spindle fibers in their proper positions. The spindle fibers that attach to the chromosomes have a fine iron wire passing through their centers and piercing the chromosomes at the points of attachment. A large hypodermic needle aided in passing the wire through the chromosomes.

As each spindle fiber was placed in position its polar end was bound to the ends of the core fibers with Scotch tape. When all of the fibers were in place the centrosomes were built up with cotton twine, coated with rubber cement, and, after the cement had dried, given a coat of black enamel. The chromosomes were also painted black in order to give them more contrast.

The finished models are sturdy and will stand fairly rough handling. Ring stands provide convenient storage racks for the models when not in use.

"Bugging in Alaska"*

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. . . a hobby suggests a vacation . . .

In March some time ago, I noticed a crocus blooming in the side yard. Crocuses always give me wanderlust. I was teaching in a steel town in Pennsylvania; I would have two and a half months free, so I sat down and wrote to all the biological supply houses I knew. I wrote that I was planning to spend my vacation in Alaska and that I would collect specimens of any orders of insects that they were willing to order and, of course, pay for. All but one answered and off I started across the country for Seattle.

. . . Pier 2 . . .

So it was, one misty June morning that I found myself at 9:00 o'clock boarding the S.S. Aleutian. The pier was already crowded with passengers and those who had come down to see the voyagers depart. The stewards passed out balls of pink, blue, and green serpentine . . . endless strips of narrow paper . . . which those on ship threw to those on the pier, and they returned it until the ship and the pier seemed hopelessly ensnared in a tri-colored spider's web. Then a steward pounded on a four-toned gong, ordered all visitors ashore, and we moved away from the wharf. The paper moorings broke. Ahead was Alaska!

. . . stop-over privileges . . .

If you know your map of Alaska, you remember that the towns are located on the Pacific for the most part. Highways are rare. To go from one town to another requires an airplane or a boat. So I secured "stop-over privileges". I purchased a first class, round trip ticket, and had permission to stay at any port of call as long as I wished, just as long as I used the ticket during the season. The steamship company did not insure

* Reprinted from Turtox News, Vol. 27, No. 2, Feb., 1949.

me a cabin. If the cabins were filled, I'd have to sleep steerage. That occurred on several occasions. I had my bed roll along, so this occasioned no difficulty. I would just spread it out on a triple-deck bunk with an Oriental snoring above me and one likewise engaged below. Of course, I could always return to "first class" for food, but I often ate in steerage for the passengers were frequently much more interesting.

. . . the inside passage . . .

I decided that this must be what fiords are like. Our ship never was out of sight of land. Often sky-high cliffs clad in snow or evergreens or both shot up on both sides of us. Islands were everywhere. Sea gulls, too! At one place called the Narrows, the mountains seemed to be closing in on us. Once, at night, we saw a little Canadian town that sparkled through the haze like a strewn handful of rhinestones. Now and again the fog squatted over us; the ship would slow down to a crawl and the fog horn would moan unhappily. I've been told that seasickness is caused by the viscosity of the fluid of the inner ear, by eating too much, by not eating enough, by suggestion or imagination; you won't have to think of an excuse for seasickness on the Inside Passage . . . it's like sailing on a mill pond.

. . . the salmon center . . .

Two days later we arrived at the first port of call, Ketchikan. It's a town that sits on the lap of a mountain that rises immediately behind it. And it isn't a generous lap for much of the town is built on piles that hold the buildings above high tide.

I found a place to stay . . . that wasn't as easy as it sounds for the salmon season was under way and the town was crowded. I was surprised that although Ketchikan boasts the world's greatest salmon canneries, I never found salmon on the menus in the restaurants.

My boat sailed on without me, and I planned to collect about Ketchikan for a week . . . then the next ship would come along and I would embark for Juneau. I was eager to discover what new species of insects I would collect.

I knew, vaguely, that this section of North America "enjoyed" a remarkable rainfall . . . about 180 inches a year. But I never imagined so much of the total would fall during the week I was there. Rain fell all day, every day of that week. It never rained hard, just constantly.

During cold, wet weather, most insects just den up. They are sun loving and the warmer it is, the more active they become. During that week at Ketchikan, I never used my collecting net. The few common species I found, I "picked". I hiked up to Fawn Lake and Lake Ketchikan through jungle-like vegetation and found many places which promised to be ideal collecting grounds provided the rain would stop. I saw more ravens than one would find east of the Mississippi; the streams were crowded with salmon headed for the spawning grounds, but the insects must have been hibernating. But the S.S. McKinley came along and we puffed on northward.

. . . I almost join a cannery force . . .

As soon as Ketchikan faded from sight, the sun came out from its week-long sulk and really turned on its personality. The next two days were perfection. There was no cabin available, so I was traveling steerage. There were 181 of us "down there", and most were Orientals. All shades of yellow, brown, and tan were present. They were great gamblers, and were eager to show me new ways of making money, but I had left almost everything I owned at the

purser's office, and when I pulled my pockets inside-out and showed them how penniless I was, they speedily lost interest.

Along the way I saw a sight I had hoped to see but didn't believe would materialize . . . whales. There were three big fellows that put on quite a show for us They heaved themselves about, geysered spectacularly, and at the end of the act, waved their great bilobed tails at us . . . A number of us waved back. I'm still quite certain that the steamship company must have arranged the performance!

Our boat stopped at two canneries where I lost my buddies. About fifty said goodby at Union Bay, and the rest left at Chatham. Chatham is a hundred miles from anywhere: a good sized cannery set down in the wilderness. While the tourists were watching the machines can salmon . . . and machinery does all the work . . . I was "out back" collecting.

Gee, my first chance to collect in about two weeks . . . the sun was shining and there was much to collect. My cyanide jar was filling when I felt an impatient tug on my arm. There stood a most annoyed steward.

"The captain is curious about your intentions," he said with heavy sarcasm; "are you going on to Juneau or not?"

I decided to return to steerage. There were only eight of us left. We dined on baked beans, boiled potatoes, stew, cake, pie, and coffee. Just like a picnic. No green vegetables, and the double dessert was slightly on the antique side, but that's steerage . . . lots to eat.

. . . *The Capital of Alaska* . . .

It was possible for me to spend a few days at Juneau on the trip North and then again when I returned. The weather was perfect on both visits. I followed for six miles a little road that twisted up the mountain directly behind the town. I bummed and hiked out to Auk Lake and the Mendenhall Glacier, some 14 miles from town. Collecting was fine in the vicinity of the lake, but there was little entomological activity in the glacier. The river that flows from it resembles milk because of the powdered rock, crushed by the weight of the ice. I succeeded, however, in getting specimens for every one of my sponsors, so Juneau is a happy memory even though I hiked miles every day and identified and papered insects every (and almost all) night.

. . . *On to Seward* . . .

We read as we left Juneau of a heat wave that was prostrating the States, but it didn't reach us. Our ship plowed through the Gulf of Alaska through icy seas. The ice masses could hardly be called bergs for they were only about eight feet out of water . . . just convenient perches for the gulls. We docked all night at Cordova, but left too early the next morning to do any collecting.

Later in the day we visited the Columbia Glacier, a river of ice that pushes down from the hinterland to toss ice masses into the Pacific. Our boat approached the great uncertain ice wall, and each time a section of ice thundered down, we bobbed about like a cork. It was very impressive! The ice, although actually white, gives the illusion of being indirectly lighted with a peculiar blue glow. I haven't been able to find an adjective to give another the actual impression I received. We docked for a few hours at Valdez and then pushed on to Seward.

. . . Beyond Seward and back . . .

Bugging was only fair in the vicinity of Seward. No rain fell, but the sky was overcast and a raw wind was blowing. I hunted about First Lake and about the Jessie Lee Home for Native Children, a delightful spot.

Next morning I started north on the Alaska Railroad, the only thing of its kind in North America. We stopped for an hour at Anchorage, and I found collecting actually in town so good that I forgot about the time and almost missed the train.

But nowhere was collecting to compare with that which I enjoyed at Matanuska Valley. If I had the summer to repeat, I'd head right for Palmer and start "netting". I arrived in time for the services at the Community Church and met a lot of folks who were friendly and interesting. I had only four days to spend in the valley and I should have liked to spend forty. My best collecting was about Finger Lake and at the edge of the hay flats, some 25 miles from the government center. When I left Palmer via the Alaska R.R., rain began to fall and it stayed with us all the way to Seward.

. . . Valdez and Inside . . .

Valdez, this terminus of the Richardson Highway, might have been good collecting but the weather was again against me and in favor of the insects. It rained incessantly. I hiked to Lake Robe and dried myself in an old cabin fitted with an oil-drum stove. I was surprised at the number of oil drums that end up by becoming stoves in Alaska.

Since the rain threatened to continue indefinitely, I decided to get into the interior via the Richardson Highway. A member of the Road Commission picked me up and I rode with him in his truck to a road camp 82 miles into the interior. On the way we passed through the amazing Keystone Canyon Park with its steep walls and waterfalls. It has its "Bridal Veil Falls" as do so many American parks . . . we must be a romantic people! We passed Snowslide Gulch, Deadhorse Gulch, Thompson Pass, and Worthington Glacier . . . all seen through the rain. But somewhere between Devil's Elbow and the Tickel Roadhouse, the sun came back and from there on collecting was first rate.

Most of the time I collected near the road. When I tired, I'd hitch a ride with a trucker on his way to Fairbanks or with a member of the highway department. Each night I'd try to make a roadhouse, for I didn't pack my bedroll. I left the main highway and collected to Chitina and back, and had good hunting near Liberty Falls. On to Copper Center, Gulkana, and to Paxson Lodge where I felt that I'd have to turn back in order to catch my boat. I had to step on it to get back on time, and then I discovered that the boat was 15 hours late. Had I loafed along the way, I might have gotten Professor Spencer a few more of his beloved Syrphus flies.

. . . And back to Seattle . . .

Both first class and steerage were crowded; I traveled to Juneau via steerage and first class the rest of the trip. By this time the canning season was over and the Orientals were on their way "out". I arrived in Seattle with a dozen cigar boxes each firmly packed with papered specimens. These were sent to the various biological supply houses, and so the vacation paid for itself. In addition I made a collection of the dragonflies and damselflies of Alaska for myself which I understand is the largest collection of this Order of insects in existence.

Editorial Comment

Men vs. Nature*

There is nothing new about the question, "How do we get what we need to keep us alive?" One of our earliest predecessors, Tritylodon, the oldest mammal, asked it. So did that sluggish appeaser Diplodocus, that violent, swashbuckling dictator Tyrannosaurus, those scorch-the-earth bands of Hyaenadons, as well as a host of others. Finding no answer, they perished. It is the question that has been on every man's lips since the dawn of human history. With our full compliments to those who have arranged for this discussion, it cannot be said that they have hit upon an *original* theme.

The experiences of these precursors of our are, however, merely suggestive and should not be thought of literally. For man is adorned with a super-brain, the measureless asset that is his alone. He will need all his intelligence, and his wisdom, now, for in this year of supposed grace the primal question—in different guise—is pressing upon humanity with a renewed and violent impact.

Not within our times, perhaps never within human history, has civilization come face to face with a problem of such magnitude. Since the beginning of the century the dazzling advances of materialism, combined with the fantastic triumphs of the physical sciences, have dimmed our eyes to its urgency. We are commencing to sense, however, that while we are probing inter-stellar spaces and bouncing radar beams off a near-by satellite, we may be reducing our own planet to moon-like sterility. Apprehension is stealing over us. A searching doubt confronts us. "Is the productive earth capable of supporting this rapidly increasing human population?"

Unfortunately, the words, "moon-like sterility" are more than a figure of speech because, within recorded history, human beings have already reduced extensive regions in which they have lived to that condition. In China, in the Near East, in portions of southern Europe, in certain regions in Africa, as well as in Australia, and worse even, within our own so-new and so-fresh continent, there are desert spots no longer cultivable and barely habitable, the result of blind misuse.

We are forced to recognize, too, that our problem, unlike that of Tritylodon —and those others who came and went— is not one of food supply alone. Man's super-brain has created a vast mechanism. Let's call it our economy, the structure of our civilization. When we consider how it operates, we need to face the fact that more than one-half of this world economy— manufacture, transport, labor, business in all its categories —is dependent upon the use and handling of organic products from the land or the sea. These, as you know, are characterized as *renewable resources.* They are "what we need to keep us alive," being not only the materials which the individual must have for subsistence, but also those which are required to support our economy, national as well as international. Consequently, the maintenance of the productivity of the earth is a first essential.

* Statement by Fairfield Osborn in panel discussion entitled, "Men vs. Nature, The Problem of World Production" at Mid-Century Convocation of the Massachusetts Institute of Technology, April 1, 1949.

These brief observations lead to two questions which appear to go to the heart of this discussion. The first, though general in character, is implicit to our thinking: "Is man a part of the biological scheme of the earth?" There is another form in which this question could be posed, "Are the processes of nature essential to the continuance of our civilization?" The second question is in reality a corollary of the first, and in its most extreme form might be expressed as follows: "Can modern technology substitute for the processes of nature?"

Before considering these questions let us see whether we have agreement as to the nature of *renewable resources.* Such resources refer of course to the things that live and grow and to those that nurture them—plant life from bacteria to forests; animal life from protozoa to mammals; finally, productive soils and the water sources that nourish and support all life. All of these if wisely used can be available to us indefinitely. There is a compelling fact that the science of ecology, now a basic element in present-day Conservation thinking, has illuminated. It is simply this—each *renewable resource,* whether forests or animal life, whether productive soils or the water sources that sustain them, is dependent upon one or more of the others. It is indeed more accurate to say that each resource is dependent upon all of the others. If we do not keep this governing principle in mind we cannot think straight about the problem and will fall into one error after another in attempting to resolve it.

There would be little to discuss here today were it not for the explosive increase in human numbers resulting in present population pressures. The "great round earth" has become a childhood illusion. Now we can fly around it in days and send a message around it in seconds—tangible symbols of its limitations. And people— so many increasing numbers of people!—from 400 million to more than 2 billion within the last 300 years, with a net increase now of almost 1% per annum! Barring an atomic cataclysm, the earth's population will probably stand at 3 billion or more by the end of the century.

We recognize, of course, that the population problem is a social as well as a biological one. In view of the fact that cultural, religious and national influences are all at work, population control is obviously most difficult of accomplishment. For my part, I am not attempting to call the number of people that the earth or any given country is capable of supporting. I presume we can all agree there is a limitation. Some may argue it is already exceeded in view of the uncomfortable truth that one-third or more of the people of the earth are even now precariously balancing on the minimum subsistence line. In any case, population pressures are not only here with us today but are likely to increase. Consequently, as far as the development of the Conservation movement is concerned and the programs that must be adopted in connection with it, we might as well face the cold, realistic fact that *renewable resources* will somehow have to be managed and used to meet the needs of increasing numbers of people.

The question as to the number of people that the earth, or any given country, can support depends in large degree upon the extent to which existing technical knowledges can be put into practice. Presumably there would, in turn, be no renewable resource problem today, if the present knowledges regarding the use of these resources had been in practice in times past and were generally in operation now. Even in our own enlightened country, however, we have barely begun to apply these knowledges. The great barrier composed

of lethargy and ignorance, coupled with prejudices derived from custom and old cultures, still blocks the road. Once more, it is a question of education. Can we learn in time?

As a result of this immense recent growth in human numbers, practically every habitable region of the earth is now occupied. This poses a brand new question because up to the last century there were always new and naturally fertile regions available for exploitation. Today the boundaries stand within our sight. New types of rapidly-maturing crops permit the extension of cultivation in colder regions, and while certain tropical regions may be made productive with extreme labor and at great cost, our earth-home is about ready to hang out the sign, "Fully Occupied."

In the meanwhile, technologists are endeavoring to provide means for meeting the demands created by this dynamic and threatening situation. Science, triumphant in the physical areas, is exploring methods of supplementing the biological processes of nature. It must do so. The situation calls for scientific exploration even into uncharted channels from which new sources of organic material might be drawn—sources of either land or marine origin.

It would not seem sensible to rest upon the hope that inorganic synthetics as substitutes for food can be created. Certainly this possibility lies a long way in the future. Further, it is unlikely that new and substantial sources of food of organic origin can be developed which will not depend upon the continuance of the earth's productivity. People, except for fasting saints, want and need to eat every day. Hope is a thin diet. Let us therefore deal with the situation as it now exists and form programs and act upon known conditions and premises.

In conclusion, scientific activities aimed at supplementing or accelerating the processes of nature, are practicable and indeed imperative. Science may even unravel the final secrets of photosynthesis and the mysteries of chlorophyll, but in these explorations we are apt to fall into the abyss of a fateful delusion and be deceived into believing that modern technology has the power to substitute itself for the functional processes of nature. Allow me to recall here that our problem is not one of food alone but is essentially one of maintaining the natural economy of the earth. Plant life including forests, animal life in its myriad forms, productive soils and water sources—each of these is in truth an interrelated part of a unified whole which sustains this economy and causes it to operate productively. In like terms, we are speaking not of the life of an individual but of the preservation of our civilization. Its structure and nature's structure will continue or dissolve together.

Concerning Reviews

In our review column we do not print long critical reviews. We are not a review journal. Our policy is to give our readers some information on new books (or films, etc. as the case may be) of interest. Our reviewers are instructed to give as much information as space permits and to omit or keep to a minimum any personal opinions. Our reviews have met with widespread approval; evidently readers prefer this type to the "evaluation" type. Many have told us that we give enough information in reviews so that they can tell whether or not the book will interest them. Of course in this matter as in all others, ABT policy is to comply with the wishes of the readers; therefore suggestions are always welcome.

The Education Index

We are indeed gratified to be able to announce at the beginning of this new school year that The American Biology Teacher has been included by the Education Index as one of the journals to be indexed regularly. This is a recognition to which we have looked forward for a long time. It will greatly increase the usefulness of our journal for both libraries and individuals. Now that we are in the official family of both Education Index and Biological Abstracts we may be said to "have arrived" in a really sound scientific and educational sense.

How Biology Teachers and Other Science Teachers Can Teach Health Education

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* Presented at the Annual Meeting of The National Association of Biology Teachers, Washington, D. C., December, 1948.

For a health educator to "tell" science teachers and especially biology teachers how to teach health education may be presumptious, but I am making several assumptions. First, where it is a practice for biology and science teachers to teach health education in the high school it would seem desirable that: (a) there be adequately trained administrative leadership for planning the total curriculum of the youth so that he has experiences in personal and community health, some of which are provided by each teacher in the school; (b) there be faculty evaluation and planning for the total school program; (c) all teachers have some knowledge and appreciation for personal and community health problems so that experiences may be real and meaningful for students; (d) teachers plan with students ways in which experiences can best be obtained for really solving personal and community health problems; and (e) that all this effort result in improved attitudes, increased knowledge, and acquired skills in healthful living.

Too often when health is taught by a teacher who has no training in health education, it results in what may be illustrated by what my son said one day after school when he laid his health textbook aside, "Well, Mom, we've finished our health, we're going to take up science the last half of the year." This does not have to be the case if there is cooperative planning in the school faculty for meeting the needs of youth even if teachers do not have special training in health. Nor does it have to be the case if the teacher is an active member of the community and area in which she or he lives and knows what the resources are for solving personal and community health problems.

The second assumption I make is that there are health facilities of some kind in your area, either a public health department or private physicians and hospital facilities and in many instances all these, adequate or inadequate, as the case may

be. Now it is possible for an individual teacher or a group of teachers to bring about cooperative planning between the persons and agencies responsible for the health of people and who claim to have an interest in the job. Too often we teachers are satisfied with reading and talking about things. One has to roll up his sleeves literally to do a real job of education in any field and especially in the field of health education where voluntary, official and professional organizations all have a stake in building a total program of health education for a community in which the school health program is an integral part.

The third assumption I make is that you are serious about the business of wanting to know how you can teach health education and so I dare to "tell" you what I think. Why can't a biology teacher do more teaching of human biology and less about earthworms and frogs? Down where I come from there is no one to keep a teacher from doing just that if she has the interest, ability and desire in improving life about her. Why can't all teachers including the biology teacher know the total program of instruction, service, and healthful school living? Why can't the biology teacher, because he or she may be the only person with adequate science background in the school take the leadership in planning with his fellow workers, both in school and non-school agencies to meet real human needs? Why can't the biology or the chemistry teacher provide some first hand experiences for youth in learning about their water supply and milk supply in connection with body defenses against disease or many other topics covered in the various sciences?

There are so many activities connected with healthful school living in which all teachers have a part that it is difficult to single out the biology or science teacher. The school lunch program is a real laboratory for helping girls with their chief problem of becoming "a whistle job" and helping boys in their struggle to become "big time operators." The school and community are also laboratories for teaching safety measures through real and meaningful experiences. Health services have to come as a result of cooperative effort, otherwise they have little educational value or promise of improving life to a great extent.

Well, this could go on and on, but perhaps enough has been said to stimulate discussion. We teachers are always so ready to "pass the buck," generally speaking, that we name all the barriers without weighing all the opportunities to "wade into" the job and do something with what we do have. However, all over the country there are teachers here and there doing a creative job in teaching health and many of them are biology teachers, so let's look to a better day by having our professional organizations do just what you are doing—Question our efforts, make plans for improved teaching that will result in better living because we have taught.

BIOLOGY LABORATORIES

Chicago, August 1949. The following are the results of two or three weeks observation of two newspapers. I have designated *The Chicago Daily Tribune* as CDT and the *Chicago Daily News* as CDN.

NEW GAME BIRD SPECIES FOUND. CDN. Aug. 4. Emmet R. Blake announces for the Chicago Natural History Museum the finding of a new species of tropical game bird. It is grouse-like but a distinct relative of the ostrich. They found it in Peru and has been named Osgood's tinamou. It is eighteen inches long, with a stubby tail less than four inches long, a long bill, small head, slender neck and rounded and stiff wing feathers. It is solid black in color while other tinamous are brown or barred brown. Tinamous are much hunted for their delicate meat.

PURPLE MARTIN MIGRATION. Chicago, July 22. CDN. People were informed that the purple martin is ready to assemble on the trees for a few days near Montrose beach for the annual flight to the south. It published diagram markings of this bird so people would not confuse it with the starling; adding "it is good bird that destroys bad insects."

SOD FLY LARVAE. San Francisco, Aug. 3. Larvae of the Australian sod fly have been found in the lawn of the University of San Francisco. It has caused great damage to corn crops in New Zealand. Dr. Kessel of this university is trying to find how they got there, how prevalent they are, and whether they breed faster than their natural enemies. It is about the size of the ordinary house fly but has a more slender body and wings. CDT.

COMPETITION. McKittrick, Cal., Aug. 3. A big fossil deposit has been found preserved in an asphalt pit. These are perhaps 10,000 years younger than those of the La Brea pits near Los Angeles. I remember the La Brea pit which I visited while at U. S. C. for a Masters. This new pit includes curious types of camels, bison, and wolves. CDT.

CORN STALK ROT. Urbana, Aug. 3. CDT. G. H. Boewe, pathologist, reports the spread of corn stalk rot in northern Illinois crops. No control measures are known. The affected plant topples over, twisting as it falls. It affects the plant between the first and second or the second and third nodes.

FORESTRY PLAN. Lincoln, Neb. Aug. 3. J. Brandeberry of US forest service announces a program for planting millions of trees in the Missouri river valley. It is commercial timber, to improve grazing land, recreation, work for seasonal employment. CDT.

DETROIT REGIONAL

The Detroit Regional Meeting, scheduled for Nov. 19, 1949 is well on the way to having the program completed. It will be at the Cranbrook Institute of Science, Bloomfield Hills, Mich.

The program is not complete; it is hoped that Betty Lockwood will take part in it. Our general theme is "Biology for Survival." The program at the time of printing is as follows:

10:15 Dr. D. F. Miller, Ohio State University
10:55 Dr. Leslie A. Kenoyer, Western Michigan College, Biology For Survival
11:35 Perry J. Reynolds, Detroit, Michigan Wild Flowers
12:15 Luncheon
1:00 Holland R. Sperry, Cranbrook, Heredity Experiments
2:00 Dr. Shirley W. Allen, University of Michigan, Wilderness Travel
2:40 Dr. Betty Lockwood, Harvard School of Public Health, Polio—1949
3:20 Ruth Dodge, The American National Red Cross
3:40 Prevo L. Whitaker, University High School, Bloomington, Indiana, The Cooperative Committee
6:00 Dinner, Speaker — Dr. Paul B. Sears, Oberlin College

For Luncheon and Dinner Reservations, write or phone Hessel W. Tenhave, 1017 Forestdale, Royal Oak, Mich.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946

Of *The American Biology Teacher*, published monthly October to May, inc. at Lancaster, Pennsylvania.

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher: BUSINESS PRESS, INC., Lancaster, Pennsylvania
Editor: JOHN BREUKELMAN, Emporia, Kansas
Managing Editor: IRVING C. KEENE, Brookline High School, Brookline, Massachusetts
Business Manager: *none*.

2. That the owner is:
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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are:
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JOHN BREUKELMAN
Editor

Letters

As a Swedish biology teacher and member of your Association of Biology Teachers I wonder, if there is any reader of *The American Biology Teacher,* who would like to enter into exchange with me in *living snakes.* The animals I can offer are: Tropidonotus natrix (normal spec. and black ones), Vipera berus and some Coronella austriaca. In return I would like to get some of the following or other beautiful snakes: Micrurus (Elaps) fulvius, Cemaphora spec. (mimicing the former), Crotalus horridus, Elaphe guttata, spilotes pullatus, perhaps a thick American Natrix and a beautifully colored Thamnophis.

LEKTOR RAGNAR ENDERLEIN,
Kungsgat. 5,
Åmål. Sweden.

Dear Mr. Breukelman:

It will be gratifying to you to learn that as a result of a questionnaire submitted recently to our library subscribers your magazine has been chosen for inclusion in the Education Index.

Since you are well acquainted with this service, we need not go into further detail. You will also know that there is no charge to the publishers for this service, but we do expect their cooperation to the extent of supplying us with an editorial copy for work. Will you therefore be kind enough to add our name to your mailing list. . . .

Please rest assured that not only our editorial staff will appreciate your cooperation, but also the users of the Education Index that are particularly interested in your subject. . . .

Cordially yours,
THE H. W. WILSON COMPANY,
J. E. KRAMM,
Editorial Correspondence

THE NATIONAL ASSOCIATION OF BIOLOGY TEACHERS has a *Health Committee.* Since a major part of health education is contained in every biology course, biology teachers are as vitally interested in this specific phase of human biology as in the zoological and botanical phases. NABT would like to assist biology teachers in better planning, in coordinating and cooperating with other health education agencies, and in aiding school health education planning committees.

As a member of NABT, would you like to help, either by: 1) serving on the Committee itself and helping to plan its activities, or 2) aiding the Committee by completing a questionnaire concerning health education in your school. Since the Committee does not know who is interested, it urgently needs volunteers. WILL YOU PLEASE drop a card to the chairman, BETTY LOCKWOOD, *Harvard School of Public Health, 695 Huntington Ave., Boston 15, Mass.,* stating whether you are interested in either of the above methods of assisting the Committee?

'BENZEDREX,' NEW REMEDY FOR HEAD COLDS

A new nasal inhaler called 'Benzedrex', which gives relief to sufferers of head colds hay fever and sinusitis has been introduced by Smith, Kline & French Laboratories, pharmaceutical manufacturers. Simultaneous with the introduction of this new inhaler was the announcement by the Philadelphia firm that they would replace 'Benzedrine' *Inhalers* with 'Benzedrex'. The new inhalers are non-stimulating and, unlike 'Benzedrine' Inhalers, are not susceptible to improper use.

Other forms of 'Benzedrine'—including 'Benzedrine' Sulfate Tablets, widely prescribed by the medical profession for a variety of conditions—will be continued to be sold, as in the past, only on the prescription of a physician.

Although 'Benzedrine' Inhalers have been on the market since 1933, it was not until several years later that the first reports of misuse by prison inmates and other delinquents came to the attention of the manufacturers. Improper use of the inhaler was made by breaking it open and removing the medicated, accordian-pleated paper inside the inhaler and either chewing it or "dunking" it in beer or soft drinks.

GENERAL SCIENCE COURSE FOR TEACHERS

The University of Oklahoma has set up an interdepartmental general science course for teachers, to be given for the first time this fall.

The courses are set up in two semesters, the first semester to be physical science, and the second semester biological science. The Department of Physics is providing classrooms, laboratory facilities, and the instructor for the first semester's work, while the Department of Plant Sciences and the Department of Zoology will collaborate on provision of classroom space and instructors for the second semester. All major science departments on the campus are making financial contributions to the establishment and the first year's operation of the courses, as well as providing special lectures as necessary.

The new courses are outgrowths of the activity of the Advisory Committee of the High School Science Service, an interdepartmentally supervised activity which was established in the University Extension Division in January, 1948. The Advisory Committee, whose membership includes representatives of all the science departments and the College of Education, will retain general responsibility for supervision and direction of the new courses.

The special objectives of the teachers' science courses are (1) to provide a more nearly adequate general science background for prospective elementary teachers; (2) to provide broad science contact for prospective teachers of secondary school science, as well as experience in a general science course before having to teach such courses, and (3) to provide broader acquaintance with science fields for teachers of non-science courses. The courses will seek to achieve their objectives through (a) developing an understanding of scientific method (induction, deduction, verfication); (b) developing a knowledge of the history of science, regarded as a construction by human personalities and a way of meeting the problems of men; (c) through the use of selected problems that will illustrate the effects of science in the modern social order and that will arouse and maintain student interest, and (d) through integrated lecture-laboratory teaching which emphasizes source materials from the students' immediate surroundings.

The coordinator for the course is Mr. James G. Harlow, who is Director of the High School Science Service.

RECENT PUBLICATIONS

Health Bulletin for Teachers, Volume XX, No. 3, March 1949. Metropolitan Life Insurance Company. 4 pp.

A brief history of the development of anesthetics. Included several references.

SAFETY thru Elementary Science, National Commission on Safety Education, National Science Teachers Association, National Education Association, 1201 Sixteenth St. N. W., Washington 6, D. C., 40 pp. $.50.

A discussion of safety, arranged in parallel columns as follows: Science Understandings; Illustrative Hazards; Desirable Practices; Suggested Activities; under the following headings:

I. *Safe Use of Toys, Tools, and Machines,* II. *Safe Use of Electricity,* III. *Fire Prevention,* IV. *Hazards Caused by Animals,* V. *Hazards Caused by Plants.*

Teaching Conditions and the Work Week of High School Science Teachers, Bulletin, 1947–48, National Science Teachers Association, 1201 Sixteenth St., N. W., Washington 6, D. C., 18 pp., $.25.

A survey of teaching conditions including the essentials of laboratory instruction and work schedules. A plea is made for more time to plan and continue experimental work, and for better professional training of science teachers.

Conover, Boardman. *Annual Report 1948,* Chicago Natural History Museum, Chicago, Illinois, 138 pp., $1.00.

The report is again characterized by excellent photographs and concise summaries of progress during the year. Lists of publications of staff members are encluded, also departmentalized lists of accessions.

BARNARD, CHESTER I., *The Rockefeller Foundation,* A Review for 1948, New York, 49 West 49th Street, pp. 71.

The body of the report is entitled "Highlights of the Year"; among these are: *Population and Agriculture; Progess in Public Health; Communciation and Medicine; Role of the Humanities; Human Relations; Studying Normal People; Central European Rehabilitation.*

The Human Race, The Travelers 1949, Book of Street and Highway Accident Data, The Travelers Insurance Companies, Hartford, Connecticut, 30 pp.

A table and cartoon summary of the nations traffic accidents record. "Let no single reader, on leafing through this booklet, refuse to admit that he is mirrored on at least one of its pages."

BLOUGH, GLENN O. and BLACKWOOD, PAUL E., *Science Teaching In Rural and Small Town Schools,* Bulletin 1949, No. 5, Federal Security Agency, Office of Education. 55 pp.

The increased interest in science in the elementary school has led to the preparation of this bulletin. Most of it is devoted to children's needs and interest in science, but there is also included a section of aids for the classroom teacher. A bibliography of both professional books for the teacher and elementary books for the children.

Health Bulletin for Teachers, Volume XX, No. 4, April 1949. Metropolitan Life Insurance Company. 4 pp.

A brief summary of the methods of treatment of mental illness and the aims of the Mental Hygiene Movement.

Health Bulletin for Teachers, Volume XX, No. 5, May 1949. Metropolitan Life Insurance Company. 4 pp.

A brief report of progress in the control of diseases of the heart and of blood vessels and of cancer.

French Bibliographical Digest, No. 1, Part 1, March 1949. Brentano's, Inc., New York City. 34 pp.

This is the first issue of a series appearing under the title of *French Bibliographical Digest* and published by the Cultural Division of the French Embassy which, it is planned, will contain a bibliography of the most significant scientific and technical books published in France between 1940 and 1948. A special issue will be devoted to books of a purely medical character.

Biological Briefs

PACKARD, CHARLES E. The Effective Administration of High School Biology Teaching Under State Supervision. Part III. The pupil gets C. *School Science and Mathematics.* Vol. 49. No. 1, p. 63 and Vol. 49. No. 2, p. 141. Jan. & Feb. 1949.

The results of state testing may be far reaching and are quite likely to be detrimental unless the tests are carefully, and accurately prepared and graded.

Charles E. Packard's papers deal largely with pointing out weaknesses that occurred in a 1947 state prepared examination. "It was learned that state examination questions are (a) founded on a state syllabus; (b) that 'the question committee preparing these papers consists of a group of classroom teachers'; (c) that 'in the case of each examination a careful check of the items is made against the syllabus in order that a balanced paper may result'."

The preparation of the questions were poorly done, the phraseology was poor, and many of the statements in the test were biologically unsound. Numerous sample test questions are submitted as evidence. It is pointed out that questions allowing a certain amount of subjectivity in their answers cannot be graded against standards, if numerous persons do the grading and interpreting.

Packard concludes: "Somewhere along the line a shake-up and revaluation are needed. The core is sound but the surface is spotted. No new theories of educational procedure need be invoked. The real task is to make more effective what we already have that is potentially admirable at our disposal."

CARHART, ARTHUR. Mass Murder in the Spruce Belt. *American Forests.* Vol. 55. No. 3. p. 14. March 1949.

Where the four states: Arizona, Colorado, Utah, and New Mexico Join, Engelmann spruce cover the mountains at altitudes of 9,000 to 11,000 feet.

During the past 10 years more than four billion board feet of spruce have been destroyed by the bark beetle, *Dendroctonous engelmanni*. The beetle is house fly size and its larvae about the size of rice grains.

The larval stages do the damage by girdling the cambium layer. Incident with the girdling, fungi effect the sapwood just beneath the bark.

The bark beetles are usually held in check by woodpeckers, but a severe windstorm in 1939 felled so many trees that the beetle–woodpecker population became unbalanced, and it has not, as yet, been restored.

HEALD, WELDON F. Our Vanishing Glaciers. *Nature Magazine*. Vol. 42, No. 3, p. 115. March 1949.

A radical change in our climate could have far reaching and perhaps even disastrous effects on our modern human civilization. The evolution of man might well be speeded up. Temperatures throughout the greater part of the earth have been generally rising since the latter part of the 19th century. We have already lived throughout a 90 year warm period.

To corroborate the above facts one need only to check the melting rate of our glaciers. The rate of melting has accelerated sharply during the past 15 years. Glacial terminals all over the world are retreating. The thickness of some New Zealand glaciers has decreased as much as 200 feet. Amazing reports of glacial recession come from the Peruvian Andes.

Glaciologists and metrologists the world over are keeping a close watch on the glaciers, the ready-made, long range climate indicators.

TANNEHILD, IVAN ROY. Science in Weather Forecasting. *The Science Counselor*. Vol. 12. No. 1. p. 5. March 1949.

The principle of the barometer discovered by Evangelista Toricelli marked an important event in the beginning of meteorology. Meteorological work originally depended largely on the ability of the individual, but it now is a science, the work being done by numerical processes.

Radar can detect rain storms; aircraft with sensitive instruments gather data by flying through hurricanes; balloons carry weather recording instruments aloft; and radio signal sending devices are carried aloft by various means while their signals are continuously recorded on the ground.

Science has especially entered the work of meteorology during and since World War II.

TED F. ANDREWS
State Teachers College, Emporia, Kansas

Reviews

KERN, FRANK D. *The Essentials of Plant Biology*. Harper and Brothers Publishers, New York. vii + 440 pp. Illus. 1947. $4.00.

For a one-semester elementary botany course, the author presents functional material for the student. Not only are the routine facts of botany submitted, but also many practical concepts in relation to man. Concerning the economic point of view, emphasis is placed upon crop rotation and parasitism, including prevention and control. Thought is particularly stimulated by the chapter dealing with the evolutionary theories of plant and animal life. In the introduction, a comprehensive discussion covers the general picture of a beginning botany course. The contents following the introduction are divided into two major portions, individual maintenance and racial preservation. Nutrition, assimilation, respiration and other life processes are described clearly with a minimum of technical terminology and details. The ecological aspects of plants are given considerable space along with well written material on the culture and protection of plants; stressed are the topics of cultivation, diseases, and pests. In part two, such general subjects as reproduction, pol-

lination, embryology, cell division, heredity, plant breeding, evolution, and taxonomy are discussed thoroughly and in an interesting style.

Over 250 pictures, with some color plates, include drawings, diagrammatic illustrations, photographs, and microphotographs. The pictures used are appropriate in conjunction with the text's contents and the text frequently refers the student to an illustration. The material is presented topically with many subheadings. In describing a phenomenon, common terminology is used followed by the scientific term usually printed in italics. The size and quality of the print is conducive to easy reading. Few footnotes are used. A concise coverage of the contents is presented in the introduction of each chapter. A restatement of important facts aids in learning and the student is further helped by speculations on modern concepts and theories. The author has done a commendable job of citing and explaining in adequate detail many experiments that can be performed easily in the laboratory thus permitting the lecture and laboratory courses to be more closely correlated.

A fifty page supplement summarizes the characteristics of the orders and some of the families of the algae, fungi, liverworts, slime molds, lichens, mosses, ferns, dicotyledons, and monocotyledons. A pictorial genealogical tree illustrates a theory of angiosperm orders. An accurate and complete index is also present. This book may well be considered for presenting botanical course work to the new student.

RUTH E. GRIFFITH,
The State College of Washington
Pullman, Washington

TELLER, JAMES DAVID. *Louis Agassiz, Scientist and Teacher.* The Ohio State University Press, Columbus, Ohio. Graduate School Studies, Education Series, No. 2. Chapter X, pp. 145, 1947.

Author James Teller brilliantly accomplishes his purposes of giving a true evaluation of Agassiz and his work, and of portraying more clearly his influence as a teacher, than has been done to date. The descriptive naturalists Cuvier, Werner, Linnaeus, Hutton and others left Agassiz an intellectual heritage which serves as a basis for a "new look" that enabled him to more effectively contribute and develop the era of the scientific naturalist.

Teller's biography of this great Swiss-American scholar reveals the forces and factors that made Agassiz a great naturalist during the first thirty-three years of his life and a still greater power as a teacher of natural history in the last thirty-three years. The first two chapters succinctly, yet interestingly, dwell upon the education of the medico-naturalist and his teaching activities which gained him a livelihood. His craving for knowledge of nature and his love for imparting his discoveries to others early divorced him from medicine and led him to become one of the great teachers of science.

Four-fifths of the story is devoted to the educational activities of Agassiz. Herein he is described as a professor, as a popular lecturer, as a conversationalist, as a member of forty-two scientific societies and as a

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writer. The out-of-doors was his laboratory and book. His ready and graphic blackboard sketches accompanied each lecture. He promoted, by word and deed, the development of a truly American university spirit, and the collections of natural objects as research tools and teaching aids.

Agassiz's influence is shown in the development of summer schools, in the education of teachers, in the development of the nature study movement, and in the methodology of the modern school.

Teller's review is an accurate, sympathetic portrayal of the influence of Louis Agassiz and his students upon science education in America. The vibrant personality and enthusiasm of the naturalist-teacher is made to pervade undimmed the classroom, the laboratory, the museum, the woods, field, stream and seashore, the outdoor summer school and public lecture hall. A task well done!

ELMO N. STEVENSON,
Southern Oregon College of Education, Ashland, Oregon

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Visual Sciences—264C, Suffern, N. Y.

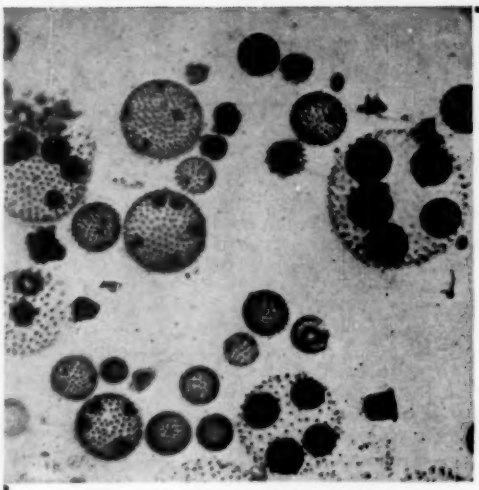
HORKHEIMER, MARY FOLEY and DIFFOR, JOHN W., *Educators Guide to Free Films.* Educators Progress Service, Randolph, Wisconsin, 355 pp. 1949. $5.00.

Most science teachers are convinced of the value of films as teaching devices, but many of them do not know that hundreds of rent free films are available. The 1949 edition of the guide is the best ever. It lists over 1700 films of which almost a third are new. Under Biology there are 55, of which 21 are new. There are 127 General Science films, many of which are of great interest to biology teachers. In Health Education many of the films on first aid, nutrition and diet deal with biology, as do many of them in the field of agriculture. Almost all of the 37 subjects in Conservation (which through a mental quirk in some classifier, is listed under Social Studies) deal with biological problems. The book is arranged in broad subject groupings as follows: Applied Arts, Fine Arts, Health Education, Science, Social Studies. This is followed by a title index, source index, subject classification, cross index and availability index. This book is a must for any school that has an audio-visual program.

JOHN BREUKELMAN

Attitudes and Health (One reel, sound, color or black-and-white; Collaborators: Dean F. Smiley, M.D.; Fred V. Hein, Ph.D., Consultants in Health and Fitness, Bureau of Health Education, American Medical Association. Coronet Films, Coronet Building, Chicago 1, Illinois).

Marv Baker didn't make the basketball team. Alice was actually ill because she failed to get an expected promotion. The situation seemed hopeless until they learned . . . as your students will learn from this film . . . that wrong attitudes prevent the individual from doing his best, and can even cause physical illness. Through this excellent film story students will realize that both achievements and failures have meaning only in perspective . . . they learn that self-confidence and right attitudes are vital to good health. (Junior High, Senior High, College, Adult)



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NABT—Christmas Meetings, 1949

NABT is again meeting with the other science education affiliates of the AAAS at Christmas time. This year's program will be held in New York City from December 27–30. Headquarters will be at the Hotel New Yorker for all three science groups, the ANSA, NSTA, and NABT.

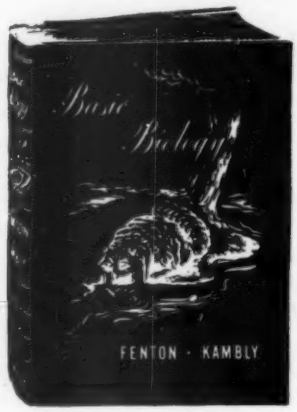
General sessions are planned for the mornings of December 27–29, with the afternoon meetings reserved for the separate organizations. On Tuesday morning, NSTA is planning the program based on Science in General Education, on Wednesday morning ANSA and NABT are sharing the responsibility and having discussions on recent biological discoveries. Thursday morning the New York City Federation of Science Teachers is planning the program.

NABT will hold its meetings for those interested in biology on Tuesday and Wednesday afternoons. The theme for the two programs is "Teaching Aids for the Biology Teacher". On Tuesday afternoon, teachers will present ideas, techniques, and demonstrations to illustrate "Biology Aids from Within the Classroom and Laboratory". On Wednesday afternoon, educational, industrial and commercial organizations will present "Biology Aids from Without the Classroom and Laboratory". Come prepared to take notes and get and give ideas!

Thursday afternoon is left free to take advantage of the several city field trips being planned by the New York Federation of Science Teachers, and Friday the customary all-day field trip sponsored by the ANSA and NABT will be held. Just where—the Committee isn't saying as yet!

The annual banquet is on Thursday night and the speaker will discuss television. The three science groups will again cooperate in sponsoring the banquet. Tickets this year will be $4.50.

Copies of the entire program will be forthcoming in November and will be mailed to all members.



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THE AMERICAN BIOLOGY TEACHER

Publication of the National Association of Biology Teachers.

Issued monthly during the school year from October to May.

Publication Office—N. Queen St. and McGovern Ave., Lancaster, Pa.

Editor-in-Chief—JOHN BREUKELMAN, State Teachers College, Emporia, Kan.

Managing Editor—IRVING C. KEENE, Brookline High School, Brookline, Massachusetts.

Subscriptions, renewals, and notices of change of address should be sent to the Secretary-Treasurer, John P. Harrold, 110 E. Hines Ave., Midland, Mich. Correspondence concerning advertising should be sent to the Managing Editor.

The entire Staff List will be found in the February and October issues.

Annual membership, including subscription, $2.50, outside United States, $3.00.